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FERNS AND EVERGREENS

OF

NEW ENGLAND.

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A SIMPLE GUIDE FOR THEIR DETERMINATION.

By EDWARD KNOBEL.

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To find the name of a fern. Observe if the stem divides into two branches or forks.

(*a*) *Feather-like parted* (pinnatifid), *i. e.*, divisions not reaching to midrib or stem.

(*b*) *Feather-like divided* (pinnate), *i. e.*, divisions reaching to midrib or stem.

(*c*) Once divided, and divisions parted.

(*d*) Twice divided (two pinnate).

(*e*) Twice divided, and divisions parted.

(*f*) Three times divided (three pinnate, or ternate).

Compare general shapes, stems, and points with drawings on the black-ground plates: also lower leaflets with detail drawings in regard to veins, sawteeth, points, and fruit dots.

The drawings are all about one-third natural size.

Key to Ferns (Filices).

Stem not forked.

(*a*) Simple leaf-like, feather-like parted, or twice parted . . . . . Plate I.

(*b*) Feather-like divided . . . . . Plate II.

(*c*) Feather-like divided and parted:

narrow . . . . . Plate II.

less than 2 ft. long . . . . . Plate III.

2 ft. or more long . . . . . Plates IV., V.

(*d*) Twice feather-like divided . . . . . Plate VI.

(*e*) Twice divided and parted, at least the lower leaflets . . . Plates VI., VII., VIII.

(*f*) Three times divided, at least the lower leaflets . . . . . Plate IX.

Stem two-forked. Ferns . . . . . Plate X.

Evergreens or Club-mosses . . . . . Plate XI.

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The Ferns have been classified by their fruit, which consists of minute one-celled powder-like spores in a case (*sporangium*). The sporangia are often clustered into round or oblong dots (*sori*), and these are sometimes covered by a thin skin (*indusium*).

1. Polypodium and Phegopteris, sori round and uncovered.

2. Pteris and Adiantum, sporangia covered by the edge of leaf.

3. Woodwardia, sori oblong, parallel to ribs.

4. Asplenium, sori oblong, oblique to ribs, and opening inwards.

5. Dicksonia, indusium cup-shaped, supported by a tooth of the leaf.

6. Woodsia, indusium hood-like, covering the sporangia.

7. Cystopteris, indusium fastened behind sori, opening from the centre.

8. Aspidium, indusium kidney or shield shaped, fastened at the middle, opening all round.

9. Onoclea, fertile on separate contracted fronds, sporangia covered with deformed leaves.

10. Osmunda and Botrychium, sporangia uncovered, and separate.

11. Lygodium, indusium scale-like, covering the sporangia.

12. Ophioglossum, sporangia uncovered, and connected.

Plate I.

Plate I.

1. Adder's Tongue. *Ophioglossum vulgatum.* 1 to 2 in.

2. Moonwort. *Botrychium simplex.* 2 to 5 in.

3. Moonwort. *Botrychium matricaria.* 3 to 6 in.

4. Common Rock Fern. *Polypodium vulgare.* 6 to 10 in.; evergreen; fruit dots large and round.

5. —— *Woodwardia angustifolia.* 1 ft. high; fertile plants, with narrow curled-up leaflets, and fruit dots parallel to midrib.

6. Mountain Fern. *Phegopteris polypodioides.* 12 in.; narrow triangular, hairy; fruit dots small.

7. —— *Phegopteris hexagonoptera.* 12 to 15 in.; broad triangular, smooth.

8. Sensitive Fern, Wood Swamp Fern. *Onoclea sensibilis.* 2 to 4 ft.

PLATE I.

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Plate II.

Plate II.

9. Spleenwort. *Asplenium trichomanes.* 3 to 8 in.; stem brown.

10. Spleenwort. *Asplenium ebenum.* 8 to 16 in.; stem brown.

11. Shield Fern. *Aspidium (Polystichum) lonchitis.* 9 to 20 in.; evergreen; short stemmed: fruit dots round, on under side of almost all leaves.

12. Wood Fern. *Aspidium acrostichoides.* 1 to 2½ ft.; bright shining, evergreen; fruit dots round, on under side of upper leaves only; long stem.

13. —— *Aspidium cristatum.* 1 to 2½ ft.; dull dark green, evergreen; fruit dots round and large.

14. —— *Woodsia obtusa.* 6 to 12 in.; fruit dots globular.

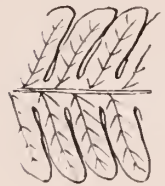
PLATE II.

PLATE III.

Plate III.

15. Spleenwort. *Asplenium thelypteroides.* 1½ to 2½ ft.; fruit dots oblong, divisions not as crowded as in No. 17, stem leafy to ground, veins simple.

16. Common Meadow Fern. *Aspidium thelypteris.* 2 ft.; bare long stalk, fruit dots round and crowded, veins forked.

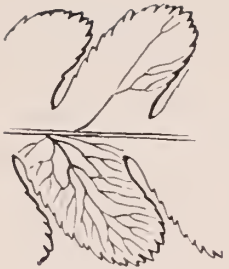


17. Common Wood Fern. *Aspidium noveboracense.* 1 to 2 ft.; fruit dots round, leaflets crowded, stem leafy to ground, veins simple.

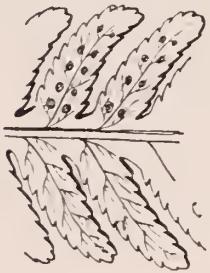
PLATE III.

Plate IV.

Plate IV.



18. Bog Fern. *Woodwardia virginica.* 2 ft.; featherlets far apart, fruit dots oblong, parallel with midrib.



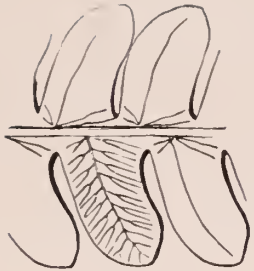
19. —— *Aspidium goldianum.* 2 to 3 ft.; fruit dots round near ribs.

20. —— *Onoclea struthiopteris* (*struthiopteris germanica*). 2 to 3 ft.; fertile on separate, curled-up, blackish fronds; stems angular; veins few and simple.

PLATE IV.

Plate V.

Plate V.



21. —— *Osmunda Claytoniana.* 2 to 4 ft.; some featherlets in middle of an ordinary frond bear the fruit.

22. —— *Osmunda cinnamomea.* 2 to 5 ft.; fruit on a separate smaller frond, thickly covered with whitish rusty wool.

Leaves of both alike; many forked veins.

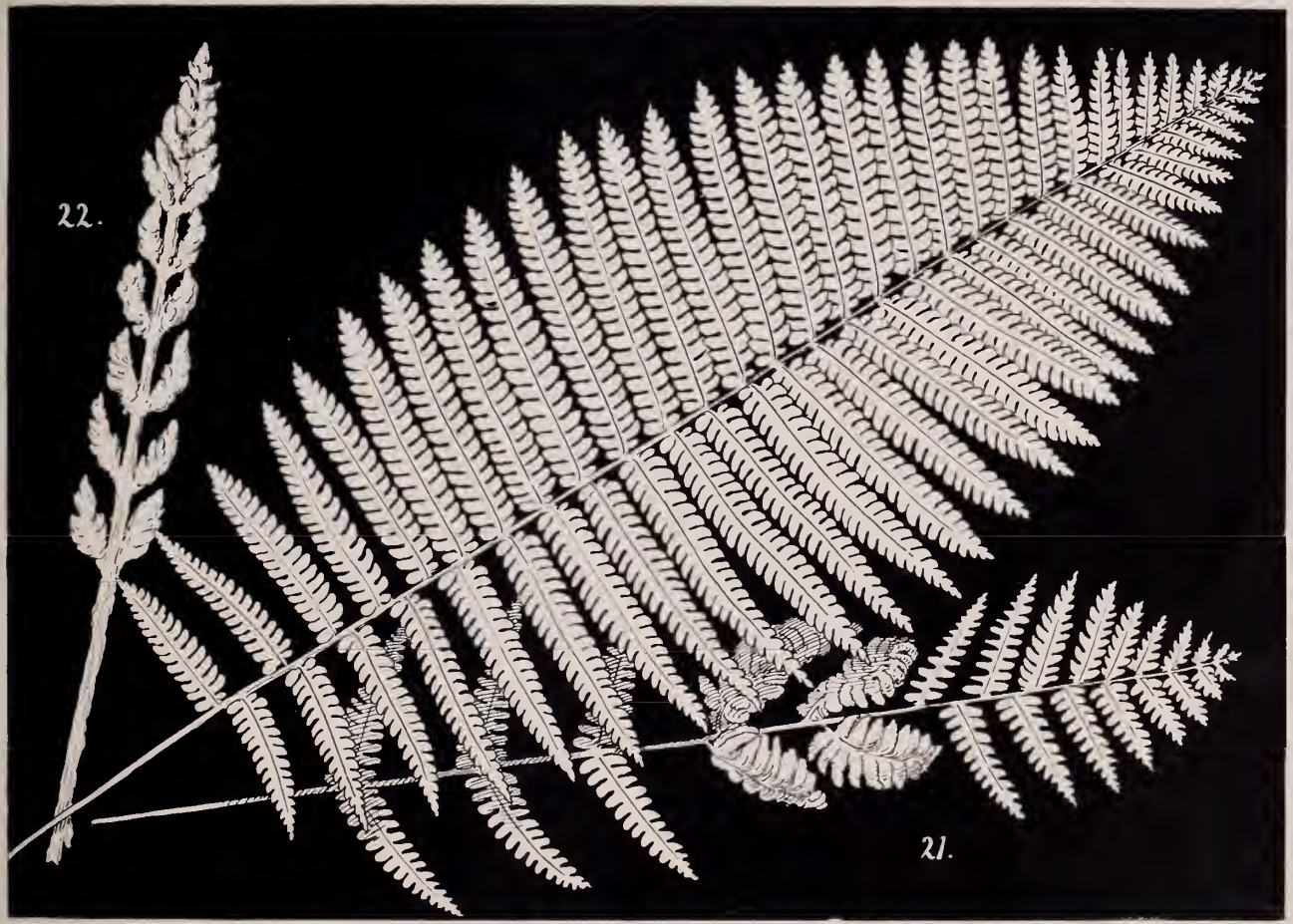
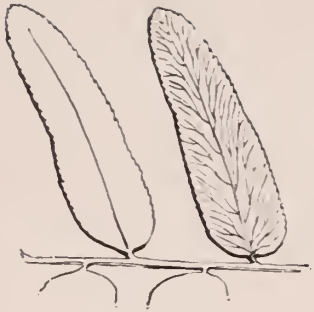


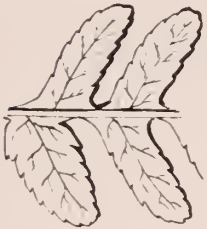
PLATE V.

PLATE VI.

Plate VI.



23. Royal Fern. *Osmunda regalis.* 2 to 5 ft.; fruit crowded on upper ends of some leaves.



24. Male Fern. Vermifuge. *Aspidium filix-mas.* 2 ft.; fruit dots round.

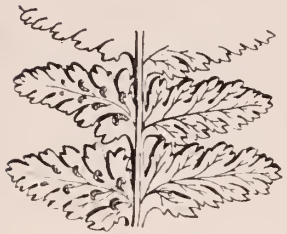
25. Rock Fern. *Aspidium marginale.* 1 to 2 ft.; evergreen; fruit dots round, near margin of leaflets.

PLATE VI.

Plate VII.

Plate VII.

26. —— *Dicksonia punctilobula* (*pilosiuscula*). 2 ft.; hairy, tapering gradually to a fine point; roundish sawteeth; fruit dots cup-shaped, globular.



27. Female Fern. *Asplenium filix-fœmina.* 1 to 3 ft.; smooth, short pointed, sharp toothed; fruit dots oblong or half-moon shaped.

There are several varieties, one smaller with only short sawtoothed leaflets, one larger with long curved leaflets.

28. Bladder Fern. *Cystopteris bulbifera.* 1 to 2 ft.; slender, sometimes little bulblets on stems.

29. —— *Cystopteris fragilis.* 1 ft.; slender.

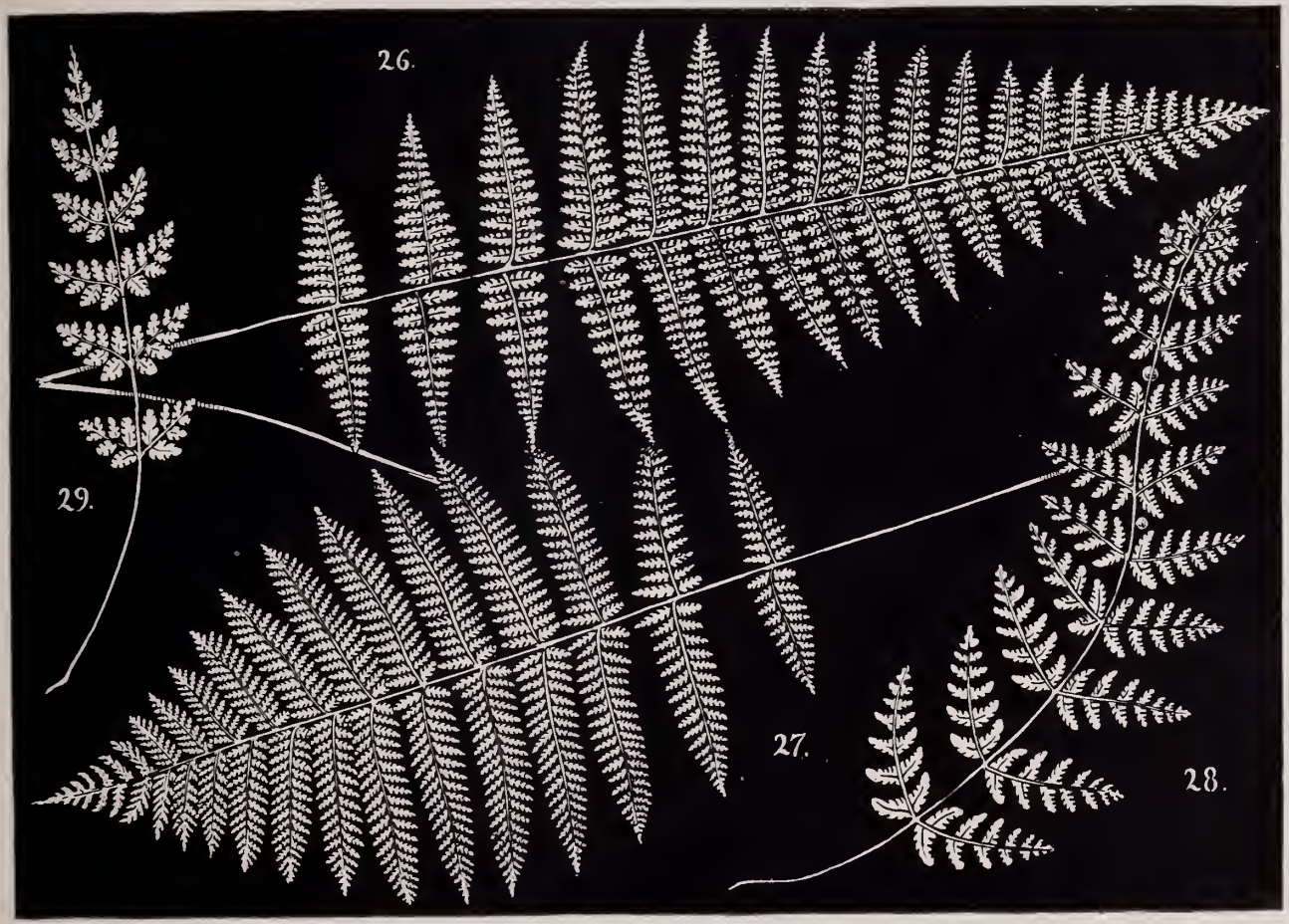


PLATE VII.

PLATE VIII.

Plate VIII.

30. —— *Aspidium boottii.* 1 to 2 ft.: evergreen, resembling a broad Aspidium cristatum, but differing in divided leaflets and much smaller fruit dots.

31. —— *Aspidium spinulosum.* 1 to 2 ft.; sharp spiny toothed: lower leaflets conspicuous, larger than the others and almost three times divided; evergreen.

32. —— *Asplenium ruta-muraria.* 2 to 4 in.; evergreen.

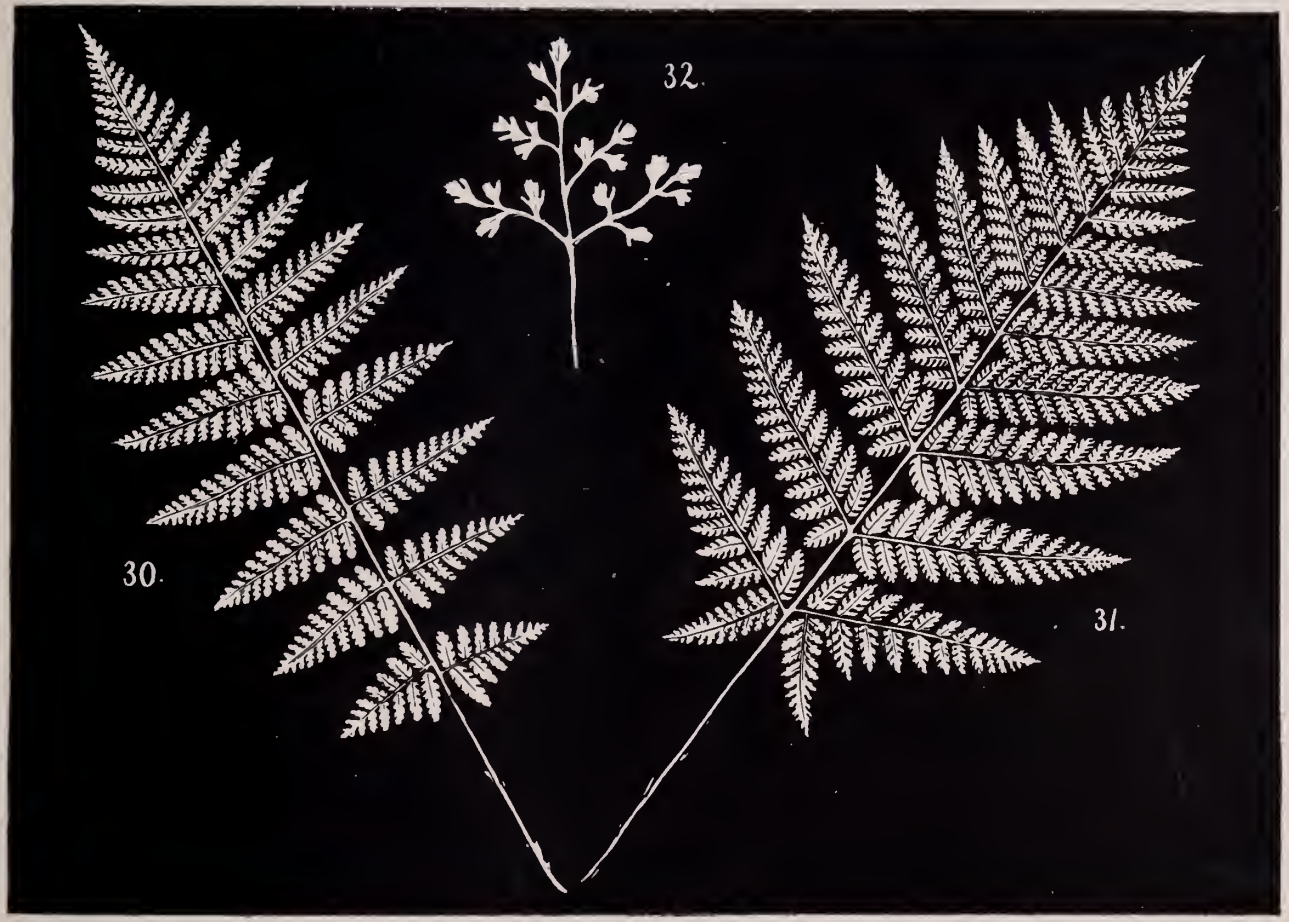


PLATE VIII.

Plate IX.

Plate IX.

33. Common Brake, Eagle Fern. *Pteris aquilina.* 2 to 3 ft. high; stem upright; fruit on curled margin of leaves.

34. Oak Fern. *Phegopteris dryopteris.* 1 ft.

35. Moonwort. *Botrychium lunarioides.* 3 to 12 in.; leaf-stem from the ground.

36. —— *Botrychium virginicum.* 1 to 2 ft.; leaf from middle of fertile stem.

PLATE IX.

Plate X.

Plate X.

37. Maiden Hair Fern. *Adiantum pedatum.* 9 to 15 in.; upright blackish stem, leaves horizontal.

38. Climbing Fern. *Lygodium palmatum.* 1 to 3 ft. long.

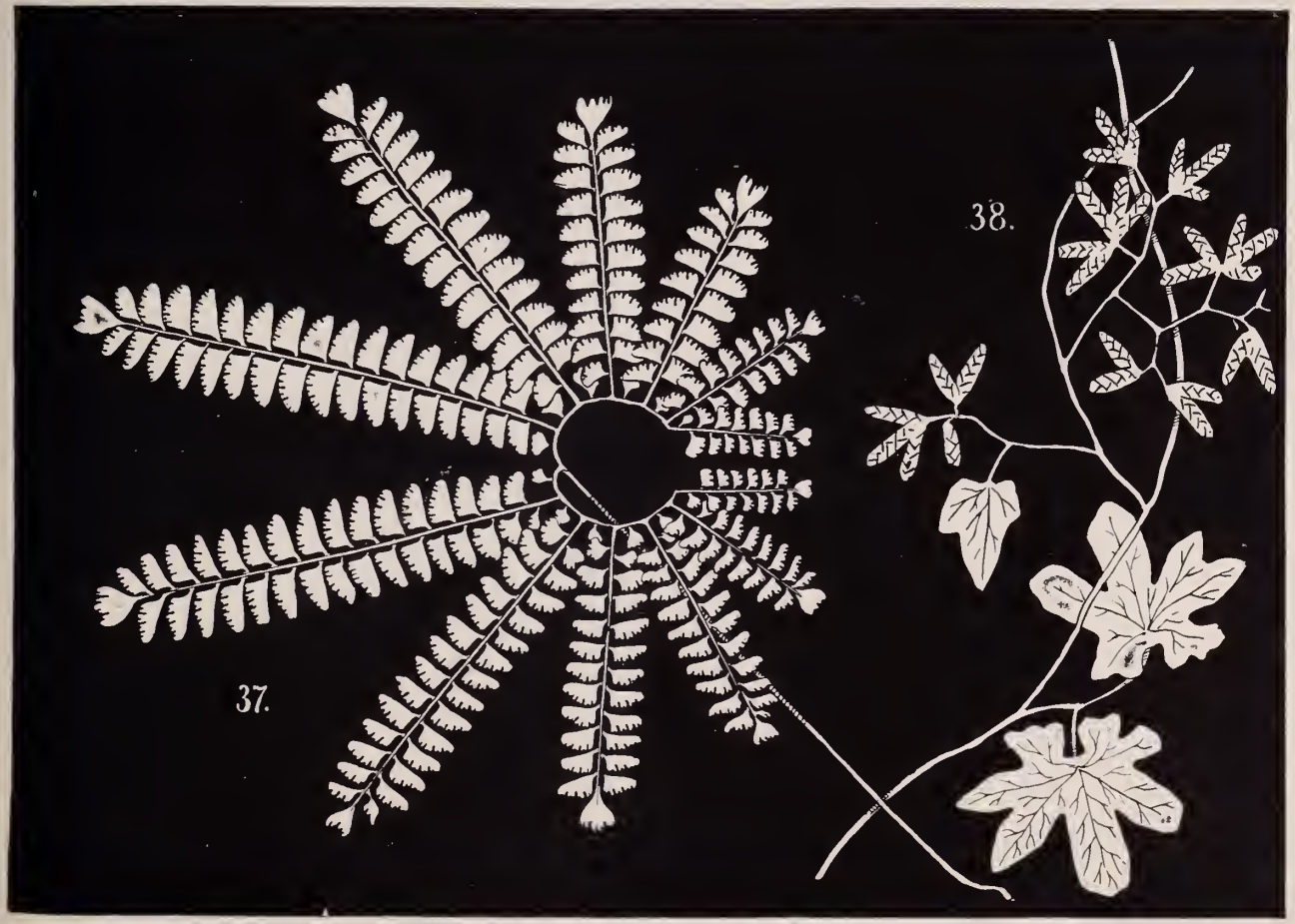


PLATE X.

PLATE XI.

EVERGREENS;

LYCOPODIUM AND CLUB-MOSS.

Plate XI.

1. Swamp Evergreen. *Lycopodium lucidulum.* 6 to 12 in.; leaves minutely toothed, growing from underground creeping stems.

   L. selago. 3 to 6 in.; similar to No. 1; leaves not toothed.

   L. inundatum. 1 to 4 in.; similar to No. 1, but creeping on the surface of ground.

2. —— *Lycopodium complanatum.* Creeping, branches flat.

3. Ground-Pine. *L. dendroideum* (*obscurum*). 6 to 9 in.; stems creeping underground.

   L. annotinum. 5 to 8 in.; similar to No. 3, but creeping on surface of ground.

4. Common Club-moss. *L. clavatum.* Creeping on surface of ground.

PLATE XI.

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